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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy Date: February 2016

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| Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy / BA 7: Operational Systems Development | R-1 Program Element (Number/Name) PE 0205601N / Harm Improvement |
|--|--|

| COST (\$ in Millions) | Prior Years | FY 2015 | FY 2016 | FY 2017 Base | FY 2017 OCO | FY 2017 Total | FY 2018 | FY 2019 | FY 2020 | FY 2021 | Cost To Complete | Total Cost |
|------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | 733.522 | 17.377 | 23.708 | 48.635 | - | 48.635 | 83.573 | 107.884 | 108.049 | 70.977 | Continuing | Continuing |
| 1780: HARM Improvement | 47.651 | 1.343 | 1.383 | 1.347 | - | 1.347 | 1.355 | 1.363 | 1.354 | 1.380 | Continuing | Continuing |
| 2185: AARGM | 685.871 | 16.034 | 12.904 | 4.237 | - | 4.237 | 4.786 | 4.782 | 4.887 | 4.977 | Continuing | Continuing |
| 2189: AARGM ER | 0.000 | 0.000 | 9.421 | 43.051 | - | 43.051 | 77.432 | 101.739 | 101.808 | 64.620 | Continuing | Continuing |

Program MDAP/MAIS Code: 368

Note

Project Unit 2189 is established for the Anti-Radiation Guided Missile (AARGM) Extended Range (ER) developmental effort and is a new start in FY 2016.

A. Mission Description and Budget Item Justification

Research, Development, Test and Evaluation funding for the Joint Service Anti-Radiation Missile (ARM) program, which will include near and far term performance improvements, cost reduction, and studies that establish future development requirements. Specific initial efforts include lower cost seeker component development and seeker aided fuzing to enhance warhead performance in low angle impacts and against certain ship targets.

JUSTIFICATION FOR BUDGET ACTIVITY: These projects are funded under Operational Systems Development because they include development efforts to upgrade systems that have been fielded or have received approval for full-rate production and anticipate funding in the current or subsequent fiscal year.

| B. Program Change Summary (\$ in Millions) | FY 2015 | FY 2016 | FY 2017 Base | FY 2017 OCO | FY 2017 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 17.420 | 52.708 | 83.991 | - | 83.991 |
| Current President's Budget | 17.377 | 23.708 | 48.635 | - | 48.635 |
| Total Adjustments | -0.043 | -29.000 | -35.356 | - | -35.356 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | -29.000 | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | - | - | | | |
| • SBIR/STTR Transfer | -0.043 | 0.000 | | | |
| • Program Adjustments | 0.000 | 0.000 | -27.761 | - | -27.761 |
| • Rate/Misc Adjustments | 0.000 | 0.000 | -7.595 | - | -7.595 |

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| Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy | | Date: February 2016 |
| Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy / BA 7: Operational Systems Development | R-1 Program Element (Number/Name) PE 0205601N / Harm Improvement | |
| <p><u>Change Summary Explanation</u></p> <p>Decrease in Harm Improvement by \$2.254M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.</p> <p>Technical: FY 2017 - FY 2021 funding increases to support AARGM Extended Range (ER) Development reflected in Project Unit 2189.</p> <p>Schedule: Project Unit 2189 AARGM ER was updated due to the refinement of Capability Development Document requirements and re-phasing of the program budget. These new requirements necessitate a refined schedule with the addition of a Technology Maturation and Risk Reduction approach.</p> | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy | | | | | | | | | | Date: February 2016 | | |
|---|-------------|---------|---------|--------------|---|---------------|---------|---------|--|---------------------|------------------|------------|
| Appropriation/Budget Activity 1319 / 7 | | | | | R-1 Program Element (Number/Name) PE 0205601N / Harm Improvement | | | | Project (Number/Name) 1780 / HARM Improvement | | | |
| COST (\$ in Millions) | Prior Years | FY 2015 | FY 2016 | FY 2017 Base | FY 2017 OCO | FY 2017 Total | FY 2018 | FY 2019 | FY 2020 | FY 2021 | Cost To Complete | Total Cost |
| 1780: HARM Improvement | 47.651 | 1.343 | 1.383 | 1.347 | - | 1.347 | 1.355 | 1.363 | 1.354 | 1.380 | Continuing | Continuing |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

High-speed Anti-Radiation Missile (HARM) Improvement is a Navy led joint service program with the Air Force. The program commenced production in FY 1983. Program element 0205601N was used until FY 1990 to develop and test one hardware and two software upgrades to the HARM (Air-to-Ground (AGM)-88B, Block 3 and AGM-88C, Block 4) as Engineering Change Proposals (ECPs). Another ECP software program (Block 3A & 5) was developed (FY 1996 through FY 1999) to modify HARM software in order to meet operational requirements. HARM Block 3A/5 software was distributed to the Fleet in FY 2000. The Block 5 tactical software upgrade gives HARM improved geographic specificity and improved capability against advanced waveforms. HARM Block 5A was developed to improve RF track, navigation, targeting and seekers. Block 5A was deployed to the Fleet in FY 2015.

HARM Improvement includes efforts to conduct Foreign Material Assessment (FMA) analysis and engineering to exploit vulnerabilities of foreign weapon system threats. HARM Improvement includes funding for threat assessment, operational updates and integration efforts.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

| | FY 2015 | FY 2016 | FY 2017 Base | FY 2017 OCO | FY 2017 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Title: HARM Foreign Material Assessment (FMA) | 1.343 | 1.383 | 1.347 | 0.000 | 1.347 |
| Articles: | - | - | - | - | - |
| <p>FY 2015 Accomplishments:</p> <p>The FMA team conducted FMA analysis and engineering to exploit vulnerabilities of foreign weapon system threats. Focused on new threat systems as they became available as well as theater/country-specific systems of interest, coordinated priorities through the Fleet Anti-Radiation Missile (ARM) Steering Committee. Expect continued testing and evaluation on advanced Surface-to-Air weapons and related Integrated Air Defense System (IADS), jammers and ARM countermeasures, and non-traditional ARM targets. Team has continued to support Fleet engagement as a key element of engineering and analytical efforts, which includes funding for threat assessment, operational updates and integration efforts.</p> <p>FY 2016 Plans:</p> <p>The FMA team will continue to conduct FMA analysis and engineering to exploit vulnerabilities of foreign weapon system threats. Focus will be on new threat systems as they become available as well as theater/country-specific systems of interest, with priorities coordinated through the Fleet ARM Steering Committee. Expect continued testing and evaluation on advanced Surface-to-Air weapons and related IADS, jammers and ARM countermeasures, and non-traditional ARM targets. Team will continue to support Fleet engagement as a key element of engineering and analytical efforts, which includes funding for threat assessment, operational updates</p> | | | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy | | | Date: February 2016 | | | |
| Appropriation/Budget Activity 1319 / 7 | | R-1 Program Element (Number/Name) PE 0205601N / <i>Harm Improvement</i> | | Project (Number/Name) 1780 / <i>HARM Improvement</i> | | |
| B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each) | | | | | | |
| | | FY 2015 | FY 2016 | FY 2017 Base | FY 2017 OCO | FY 2017 Total |
| <p>and integration efforts. Additional test priorities include characterizing complex systems in the field, so that the 5A attenuation and Lower Threshold Adjust fields can be populated with the data that gives the best track quality to the High-speed Anti-Radiation Missile (HARM) missile. The Foreign Material Assessment (FMA) team will conduct developmental tests of in-country foreign threat systems via ground and flight test to maximize HARM system performance. Focus will be on any system not previously tested by the FMA team. Non-traditional targeting methods will be explored as well.</p> <p><i>FY 2017 Base Plans:</i> The FMA team will continue to conduct FMA analysis and engineering to exploit vulnerabilities of foreign weapon system threats. Focus will be on new threat systems as they become available as well as theater/ country-specific systems of interest, with priorities coordinated through the Fleet Anti-Radiation Missile Steering Committee. Expect continued testing on advanced Surface-to-Air weapons and related Integrated Air Defense System (IADS), jammers and ARM countermeasures, and non-traditional Anti-Radiation Missile (ARM) targets. Team will continue to support Fleet engagement as a key element of engineering and analytical efforts, which includes funding for threat assessment, operational updates and integration efforts. Additional test priorities include charcaterizing complex systems in the field, so that the 5A attenuation and Lower Threat Adjust fields can be populated with the data that gives the best track quality to the HARM missile. The FMA team will continue to conduct developmental test of in-country foreign threat systems via ground and flight test in FY 2017 to maximize HARM system performance. Non-traditional targeting methods will be explored as well.</p> <p><i>FY 2017 OCO Plans:</i> N/A</p> | | | | | | |
| Accomplishments/Planned Programs Subtotals | | 1.343 | 1.383 | 1.347 | 0.000 | 1.347 |
| C. Other Program Funding Summary (\$ in Millions) N/A | | | | | | |
| Remarks | | | | | | |
| D. Acquisition Strategy HARM system updates are provided through the System Support Activity (SSA) at Naval Air Warfare Center - Weapons Division (NAWCWD), China Lake, CA. | | | | | | |
| E. Performance Metrics Continue FMA testing analysis against new and evolving foreign threats. | | | | | | |

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy | | | | | | | | | | | | | Date: February 2016 | | |
| Appropriation/Budget Activity 1319 / 7 | | | | | | R-1 Program Element (Number/Name) PE 0205601N / <i>Harm Improvement</i> | | | | Project (Number/Name) 1780 / <i>HARM Improvement</i> | | | | | |

| Product Development (\$ in Millions) | | | | FY 2015 | | FY 2016 | | FY 2017 Base | | FY 2017 OCO | | FY 2017 Total | | | |
|--|-----------------------------------|---|--------------------|----------------|-------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Systems Engineering | WR | NAWCWD : China Lake, CA | 3.813 | 1.341 | Nov 2014 | 1.181 | Nov 2015 | 1.141 | Nov 2016 | - | | 1.141 | Continuing | Continuing | Continuing |
| Prior Year Prod Dev no longer funded in FYDP | Various | Various : Various | 24.732 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 24.732 | - |
| Subtotal | | | 28.545 | 1.341 | | 1.181 | | 1.141 | | - | | 1.141 | - | - | - |

| Test and Evaluation (\$ in Millions) | | | | FY 2015 | | FY 2016 | | FY 2017 Base | | FY 2017 OCO | | FY 2017 Total | | | |
|---|-----------------------------------|---|--------------------|----------------|-------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Operational Test & Eval | WR | NAWCWD : China Lake, CA | 18.701 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | Continuing |
| Developmental Test & Eval | WR | NAWCWD : China Lake, CA | 0.000 | 0.000 | | 0.200 | Nov 2015 | 0.204 | Nov 2016 | - | | 0.204 | Continuing | Continuing | Continuing |
| Subtotal | | | 18.701 | 0.000 | | 0.200 | | 0.204 | | - | | 0.204 | - | - | - |

| Management Services (\$ in Millions) | | | | FY 2015 | | FY 2016 | | FY 2017 Base | | FY 2017 OCO | | FY 2017 Total | | | |
|---|-----------------------------------|---|--------------------|----------------|-------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Travel | WR | Various : Various | 0.405 | 0.002 | Jan 2015 | 0.002 | Jan 2016 | 0.002 | Jan 2017 | - | | 0.002 | Continuing | Continuing | Continuing |
| Subtotal | | | 0.405 | 0.002 | | 0.002 | | 0.002 | | - | | 0.002 | - | - | - |

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|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Remarks Contract Type for Travel is Travel Order (TO). | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

| | | | Prior Years | FY 2015 | | FY 2016 | | FY 2017 Base | | FY 2017 OCO | | FY 2017 Total | Cost To Complete | Total Cost | Target Value of Contract |
|----------------------------|--|--|--------------------|----------------|--|----------------|--|---------------------|--|--------------------|--|----------------------|-------------------------|-------------------|---------------------------------|
| Project Cost Totals | | | 47.651 | 1.343 | | 1.383 | | 1.347 | | - | | 1.347 | - | - | - |

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|----------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Remarks | | | | | | | | | | | | | | | |
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| Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy | | | | | | | | | | | | | | | | | | | | | | | Date: February 2016 | | | | | |
| Appropriation/Budget Activity 1319 / 7 | | | | | | | | | | | | R-1 Program Element (Number/Name) PE 0205601N / Harm Improvement | | | | | | | | Project (Number/Name) 1780 / HARM Improvement | | | | | | | | |
| HARM IMPROVEMENT | FY 2015 | | | | FY 2016 | | | | FY 2017 | | | | FY 2018 | | | | FY 2019 | | | | FY 2020 | | | | FY 2021 | | | |
| | 1Q | 2Q | 3Q | 4Q | 1Q | 2Q | 3Q | 4Q | 1Q | 2Q | 3Q | 4Q | 1Q | 2Q | 3Q | 4Q | 1Q | 2Q | 3Q | 4Q | 1Q | 2Q | 3Q | 4Q | 1Q | 2Q | 3Q | 4Q |
| Acquisition Milestones | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Radar System Evaluation | Foreign Material Assessment | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Systems Development | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Production Milestones | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Deliveries | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy | | | Date: February 2016 |
| Appropriation/Budget Activity 1319 / 7 | R-1 Program Element (Number/Name) PE 0205601N / <i>Harm Improvement</i> | Project (Number/Name) 1780 / <i>HARM Improvement</i> | |

Schedule Details

| Events by Sub Project | Start | | End | |
|--|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| <i>HARM IMPROVEMENT</i> | | | | |
| Acquisition Milestones: Radar System Evaluation: Radar System Evaluation - Foreign Material Assessment | 1 | 2015 | 4 | 2021 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy | | | | | | | | | | Date: February 2016 | | |
|---|-------------|---------|---------|--------------|---|---------------|---------|---------|---------------------------------------|---------------------|------------------|------------|
| Appropriation/Budget Activity 1319 / 7 | | | | | R-1 Program Element (Number/Name) PE 0205601N / Harm Improvement | | | | Project (Number/Name) 2185 / AARGM | | | |
| COST (\$ in Millions) | Prior Years | FY 2015 | FY 2016 | FY 2017 Base | FY 2017 OCO | FY 2017 Total | FY 2018 | FY 2019 | FY 2020 | FY 2021 | Cost To Complete | Total Cost |
| 2185: AARGM | 685.871 | 16.034 | 12.904 | 4.237 | - | 4.237 | 4.786 | 4.782 | 4.887 | 4.977 | Continuing | Continuing |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

Advanced Anti-Radiation Guided Missile (AARGM) transitioned a Phase III Small Business Innovative Research (SBIR) program to develop and demonstrate a multi-mode guidance section on a HARM airframe to System Development and Demonstration (SD&D) in FY 2003. The AARGM SD&D program was designed to integrate multi-mode guidance (passive Anti-Radiation Homing (ARH)/active Millimeter Wave (MMW) Radar/Global Positioning System (GPS)/Inertial Navigation System) on the HARM Air-to-Ground Missile (AGM)-88. AARGM weapon system capabilities include: active MMW terminal guidance, counter shutdown, expanded threat coverage, enhanced ARH, netted targeting real-time feed via Integrated Broadcast System (IBS) prior to missile launch, Weapon Impact Assessment (WIA) transmitted prior to detonation, GPS/point-to-point weapon navigation, and weapon employment with impact avoidance zone/missile impact zones.

In June 2003, a successful Milestone B transitioned AARGM to a SD&D Acquisition Category 1C program. Alliant Techsystems (ATK) Missile Systems Company was awarded the AARGM SD&D contract valued at \$222.6M. In May 2004, the contract baseline was increased to \$231.9M to accelerate incorporation of an embedded IBS-Receiver, enabling the warfighter to directly receive National intelligence data, increasing overall pilot situational awareness. Recent modifications have changed the current baseline to \$232.3M.

The AARGM program includes 40 SD&D test articles with the follow on of 2,435 production modification kits. Milestone C was achieved 4Q FY 2008, followed by a combined FY 2008/FY 2009 Low Rate Initial Production (LRIP) contract award in 1Q FY 2009. Developmental testing was completed in 2009. Initial Operational Test and Evaluation (IOT&E) was completed in 3Q FY 2012. Full-Rate Production (FRP) decision was received 4 September 2012 with FRP contract award on 10 September 2012, and deliveries began in January 2014. The program awarded FRP-4 on 4 September 2015 with deliveries projected to begin in January 2017.

The AARGM Block 1 Upgrade program began in FY 2012 and consists of a software only upgrade to deferred Key Performance Parameter 3 and to correct IOT&E deficiencies in the AGM-88E All-Up-Round as well as the Common Munitions Built-in Test (BIT) Reprogramming Equipment (CMBRE). In parallel with the Block 1 Upgrade, Integrated Broadcast Service (IBS)-R developmental efforts are ongoing.

Follow-on Operational Test and Evaluation/Integrated Test/Operational Test - Development (FOT&E/IT/OT-D) in conjunction with Block 1 Upgrade will complete tactics development and support promulgation of Operational Tactics Guide (OTG).

In FY 2015 - FY 2021, the Air-to-Ground Missile (AGM)-88E AARGM program plans to develop and demonstrate the capability to engage and destroy non-traditional and Overseas Contingency Operations targets. These developments continue Future Naval Capability Science and Technology investments by the Office of Naval Research initiated in FY 2006.

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| Appropriation/Budget Activity 1319 / 7 | | R-1 Program Element (Number/Name) PE 0205601N / Harm Improvement | | Project (Number/Name) 2185 / AARGM | | |
| B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each) | | FY 2015 | FY 2016 | FY 2017 Base | FY 2017 OCO | FY 2017 Total |
| Title: Threat Data Library / System Updates | | 0.400 | 0.400 | 2.210 | 0.000 | 2.210 |
| Articles: | | - | - | - | - | - |
| FY 2015 Accomplishments: AGM-88E Block 1 Upgrade continued effort to update Electronic Intelligence files and Millimeter Wave signatures to identify track and engage new and/or improved threat radars. Continued test and assessment of threat systems. Developed threat data for new target sets. | | | | | | |
| FY 2016 Plans: AGM-88E Block 1 Upgrade continues effort to update Electronic Intelligence files and Millimeter Wave signatures to identify track and engage new and/or improved threat radars. Continue test and assessment of threat systems. Develop threat data for new target sets. | | | | | | |
| FY 2017 Base Plans: AGM-88E Block 1 Upgrade continues effort to upgrade systems such as the Electronic Intelligence files and Millimeter Wave signatures to identify track and engage new and/or improved threat radars. Continue test and assessment of threat systems that impact already fielded weapons and to develop threat data for new target sets. | | | | | | |
| FY 2017 OCO Plans: N/A | | | | | | |
| Title: Follow-on Operational Test and Evaluation (FOT&E) | | 12.828 | 10.814 | 1.077 | 0.000 | 1.077 |
| Articles: | | - | - | - | - | - |
| FY 2015 Accomplishments: Continued FOT&E, including Integrated Test (IT) and Operational Test (OT) for Advanced Anti-Radiation Guided Missile (AARGM) Block 1 utilizing Commander Operational Test & Evaluation Force (COMOPTEVFOR) requirements for suitable and effective for desired flights, targets and locations. | | | | | | |
| FY 2016 Plans: Continue FOT&E, including Integrated Test and dedicated OT for AARGM Block 1 utilizing COMOPTEVFOR requirements to assess weapon suitability and effectiveness against targets and locations. | | | | | | |
| FY 2017 Base Plans: | | | | | | |

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| Appropriation/Budget Activity 1319 / 7 | | | | R-1 Program Element (Number/Name) PE 0205601N / Harm Improvement | | | | Project (Number/Name) 2185 / AARGM | | | |
| B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each) | | | | | | | FY 2015 | FY 2016 | FY 2017 Base | FY 2017 OCO | FY 2017 Total |
| Complete FOT&E, including IT and OT for AARGM Block 1 utilizing COMOPTEVFOR requirements for suitable and effective for desired flights, targets and locations. Continue to upgrade the system with test results to include developmental activity assessing software and hardware anomalies. | | | | | | | | | | | |
| FY 2017 OCO Plans: N/A | | | | | | | | | | | |
| Title: Advanced Development | | | | | | | 2.806 | 1.690 | 0.950 | 0.000 | 0.950 |
| Articles: | | | | | | | - | - | - | - | - |
| FY 2015 Accomplishments: Continued support for advanced development, analysis activities of testing, configuration control board review, test plan reviews, requirements analysis and weapons integration analysis. | | | | | | | | | | | |
| FY 2016 Plans: Continue support for advanced development, systems capability upgrades, analysis activities and testing such as the Integrated Broadcast Service - Receiver. Funding supports testing, configuration control board review, test plan reviews, requirements analysis and weapons integration analysis. Funding also supports the Anti-Radiation Missile (AARGM) Derivative Program to include upgrading the AGM-88E capability against non-traditional and Overseas Contingency Operations (OCO) targets, weapon system developmental activities, range and laboratory support and analysis. | | | | | | | | | | | |
| FY 2017 Base Plans: Continue support for advanced development, upgrades systems capability, analysis activities and testing such as the Integrated Broadcast Service - Receiver. Funding supports testing, configuration control board review, test plan reviews, requirements analysis and weapons integration analysis. Funding also supports upgrading AGM-88E capability against non-traditional and OCO targets. This includes weapon system developmental activities, range and laboratory support and analysis. | | | | | | | | | | | |
| FY 2017 OCO Plans: N/A | | | | | | | | | | | |
| Accomplishments/Planned Programs Subtotals | | | | | | | 16.034 | 12.904 | 4.237 | 0.000 | 4.237 |
| C. Other Program Funding Summary (\$ in Millions) | | | | | | | | | | | |
| Line Item | FY 2015 | FY 2016 | FY 2017 Base | FY 2017 OCO | FY 2017 Total | FY 2018 | FY 2019 | FY 2020 | FY 2021 | Cost To Complete | Total Cost |
| • WPN 2327: HARM Mods | 106.489 | 120.798 | 178.213 | - | 178.213 | 222.625 | 222.159 | 156.534 | 159.605 | 343.662 | 1,935.289 |

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|--|---|---|----------------------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy | | | Date: February 2016 |
| Appropriation/Budget Activity 1319 / 7 | R-1 Program Element (Number/Name) PE 0205601N / <i>Harm Improvement</i> | Project (Number/Name) 2185 / <i>AARGM</i> | |

C. Other Program Funding Summary (\$ in Millions)

| <u>Line Item</u> | <u>FY 2015</u> | <u>FY 2016</u> | <u>FY 2017</u> <u>Base</u> | <u>FY 2017</u> <u>OCO</u> | <u>FY 2017</u> <u>Total</u> | <u>FY 2018</u> | <u>FY 2019</u> | <u>FY 2020</u> | <u>FY 2021</u> | <u>Cost To</u> <u>Complete</u> | <u>Total Cost</u> |
|------------------|----------------|----------------|-------------------------------|------------------------------|--------------------------------|----------------|----------------|----------------|----------------|-----------------------------------|-------------------|
|------------------|----------------|----------------|-------------------------------|------------------------------|--------------------------------|----------------|----------------|----------------|----------------|-----------------------------------|-------------------|

Remarks

FY 2021 and Total Cost funding listed does not include the AARGM ER funding.

D. Acquisition Strategy

The AARGM program started as a Phase I Small Business Innovative Research (SBIR), Advanced Technology Program, evolved into a Phase III SBIR program, and transitioned into a System Development and Demonstration (SD&D) Acquisition Category 1C program in June 2003. The AARGM SD&D fulfills U.S. Navy operational requirements and incorporates AARGM Advanced Technology Development and Quick Bolt Advanced Concept Technology Demonstration - demonstrated system requirements. Government responsibilities for SD&D have included monitoring, technical assessment, and validation of contractor technology development and testing. Milestone C was achieved 4Q FY 2008, followed by a combined FY08/FY09 Low Rate Initial Production (LRIP) contract award in 1Q FY 2009. LRIP I deliveries commenced 3Q FY 2010. Full-Rate Production (FRP) decision was received 20 August 2012 with FRP contract award on 10 September 2012 and deliveries began in January 2014. Block 1 Fleet Release anticipated for 2Q FY 2017.

E. Performance Metrics

Achieved Milestone C in 2008. Completed Developmental Testing in 2009. Successfully completed Operational Test Readiness Review in 2010. Successfully completed Operational Test in 3Q FY 2012. Full-Rate Production approval was granted in 4Q FY 2012, and deliveries commenced in FY 2014. Block 1 Fleet Release scheduled for 2Q FY 2017.

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy | | | | | | | | | | | | Date: February 2016 | | | |
|--|------------------------|--------------------------------|-------------|---------|------------|---|------------|--------------|------------|---------------------------------------|------------|---------------------|------------------|------------|--------------------------|
| Appropriation/Budget Activity 1319 / 7 | | | | | | R-1 Program Element (Number/Name) PE 0205601N / Harm Improvement | | | | Project (Number/Name) 2185 / AARGM | | | | | |
| Product Development (\$ in Millions) | | | | FY 2015 | | FY 2016 | | FY 2017 Base | | FY 2017 OCO | | FY 2017 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Systems Engineering | WR | NAWCWD : China Lake, CA | 70.377 | 3.740 | Nov 2014 | 3.448 | Nov 2015 | 2.012 | Nov 2016 | - | | 2.012 | Continuing | Continuing | Continuing |
| Software Development | WR | SPAWAR : San Diego, CA | 0.471 | 0.098 | Mar 2015 | 0.050 | Mar 2016 | 0.050 | Mar 2017 | - | | 0.050 | Continuing | Continuing | Continuing |
| Mission Planning | WR | Various : Various | 0.100 | 0.100 | Mar 2015 | 0.100 | Mar 2016 | 0.100 | Mar 2017 | - | | 0.100 | Continuing | Continuing | Continuing |
| Prior year Prod Dev no longer funded in the FYDP | Various | Various : Various | 543.386 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 543.386 | - |
| Subtotal | | | 614.334 | 3.938 | | 3.598 | | 2.162 | | - | | 2.162 | - | - | - |
| Support (\$ in Millions) | | | | FY 2015 | | FY 2016 | | FY 2017 Base | | FY 2017 OCO | | FY 2017 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Prior year Support no longer funded in the FYDP | Various | Various : Various | 7.147 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 7.147 | - |
| Subtotal | | | 7.147 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 7.147 | - |
| Test and Evaluation (\$ in Millions) | | | | FY 2015 | | FY 2016 | | FY 2017 Base | | FY 2017 OCO | | FY 2017 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Development Test & Evaluation | WR | NAWCWD : China Lake, CA | 26.050 | 0.220 | Nov 2014 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | Continuing |
| Development Test & Evaluation | SS/IDIQ | Orbital ATK : Northridge, CA | 1.305 | 4.571 | Feb 2015 | 0.300 | Feb 2016 | 0.000 | | - | | 0.000 | 0.000 | 6.176 | 6.176 |
| Operational and Integrated Test & Evaluation (IT&OT) | WR | NAWCWD : China Lake, CA | 1.795 | 5.009 | Nov 2014 | 0.992 | Nov 2015 | 0.401 | Nov 2016 | - | | 0.401 | Continuing | Continuing | Continuing |
| Operational and Integrated Test & Evaluation (IT&OT) | WR | COMOPTEVFOR : Norfolk, VA | 10.652 | 1.135 | Nov 2014 | 6.537 | Nov 2015 | 0.648 | Nov 2016 | - | | 0.648 | Continuing | Continuing | Continuing |
| Operational and Integrated Test & Evaluation (IT&OT) | SS/IDIQ | Orbital ATK : Northridge, CA | 0.000 | 0.000 | | 0.300 | Feb 2016 | 0.291 | Feb 2017 | - | | 0.291 | Continuing | Continuing | Continuing |
| | | | | | | | | | | | | | | | |

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

| | | |
|--|---|---|
| Appropriation/Budget Activity 1319 / 7 | R-1 Program Element (Number/Name) PE 0205601N / <i>Harm Improvement</i> | Project (Number/Name) 2185 / <i>AARGM</i> |
|--|---|---|

| Test and Evaluation (\$ in Millions) | | | | FY 2015 | | FY 2016 | | FY 2017 Base | | FY 2017 OCO | | FY 2017 Total | | | |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Prior year T&E no longer funded in the FYDP | Various | Various : Various | 7.469 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 7.469 | - |
| Subtotal | | | 47.271 | 10.935 | | 8.129 | | 1.340 | | - | | 1.340 | - | - | - |

| Management Services (\$ in Millions) | | | | FY 2015 | | FY 2016 | | FY 2017 Base | | FY 2017 OCO | | FY 2017 Total | | | |
|--|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Program Management Support | Various | Various : Various | 4.151 | 0.279 | Feb 2015 | 0.284 | Feb 2016 | 0.189 | Feb 2017 | - | | 0.189 | Continuing | Continuing | Continuing |
| Travel | WR | NAVAIR HQ : Patuxent River, MD | 1.697 | 0.017 | Jan 2015 | 0.015 | Feb 2016 | 0.015 | Feb 2017 | - | | 0.015 | Continuing | Continuing | Continuing |
| Government Engineering Support | WR | NAWC AD : Patuxent River, MD | 1.021 | 0.665 | Nov 2014 | 0.678 | Nov 2015 | 0.431 | Nov 2016 | - | | 0.431 | Continuing | Continuing | Continuing |
| Program Management Support | Various | NRO : Washington, D.C. | 0.000 | 0.200 | Nov 2014 | 0.200 | Nov 2015 | 0.100 | Nov 2016 | - | | 0.100 | Continuing | Continuing | Continuing |
| Prior year Mgmt no longer funded in the FYDP | Various | Various : Various | 10.250 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 10.250 | - |
| Subtotal | | | 17.119 | 1.161 | | 1.177 | | 0.735 | | - | | 0.735 | - | - | - |

Remarks

Contract Type for Travel is TO

| | Prior Years | FY 2015 | FY 2016 | FY 2017 Base | FY 2017 OCO | FY 2017 Total | Cost To Complete | Total Cost | Target Value of Contract |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|------------------|------------|--------------------------|
| Project Cost Totals | 685.871 | 16.034 | 12.904 | 4.237 | - | 4.237 | - | - | - |

Remarks

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PE 0205601N: *Harm Improvement*
Navy

R-1 Line #205

| |
|---|
| R-1 Program Element (Number/Name) PE 0205601N / <i>Harm Improvement</i> |
|---|

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2017PB - 0205601N - 2185

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|---|---|---|----------------------------|
| Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy | | | Date: February 2016 |
| Appropriation/Budget Activity 1319 / 7 | R-1 Program Element (Number/Name) PE 0205601N / <i>Harm Improvement</i> | Project (Number/Name) 2185 / <i>AARGM</i> | |

Schedule Details

| Events by Sub Project | Start | | End | |
|--|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| AARGM | | | | |
| Acquisition Milestones: Milestones: BLOCK 1 Fleet Release | 2 | 2017 | 2 | 2017 |
| Test & Evaluation: Follow-on Test and Evaluation: Block 1 IT/OT (FOT&E) | 1 | 2015 | 2 | 2017 |
| Production Milestones: Contract Award: Full-Rate Production Lot 4 | 4 | 2015 | 4 | 2015 |
| Production Milestones: Contract Award: Full-Rate Production Lot 5 | 3 | 2016 | 3 | 2016 |
| Production Milestones: Contract Award: Full-Rate Production Lot 6 | 3 | 2017 | 3 | 2017 |
| Production Milestones: Contract Award: Full-Rate Production Lot 7 | 3 | 2018 | 3 | 2018 |
| Production Milestones: Contract Award: Full-Rate Production Lot 8 | 3 | 2019 | 3 | 2019 |
| Production Milestones: Contract Award: Full-Rate Production Lot 9 | 3 | 2020 | 3 | 2020 |
| Production Milestones: Contract Award: Full-Rate Production Lot 10 | 3 | 2021 | 3 | 2021 |
| Full-Rate Production Deliveries: Full-Rate Production Deliveries - Lot 1 (WPN) | 1 | 2015 | 3 | 2015 |
| Full-Rate Production Deliveries: Full-Rate Production Deliveries - Lot 2 (WPN) | 3 | 2015 | 2 | 2016 |
| Full-Rate Production Deliveries: Full-Rate Production Deliveries - Lot 3 (WPN) | 2 | 2016 | 1 | 2017 |
| Full-Rate Production Deliveries: Full-Rate Production Deliveries - Lot 4 (WPN) | 2 | 2017 | 1 | 2018 |
| Full-Rate Production Deliveries: Full-Rate Production Deliveries - Lot 5 (WPN) | 2 | 2018 | 1 | 2019 |
| Full-Rate Production Deliveries: Full-Rate Production Deliveries - Lot 6 (WPN) | 2 | 2019 | 1 | 2020 |
| Full-Rate Production Deliveries: Full-Rate Production Deliveries - Lot 7 (WPN) | 2 | 2020 | 1 | 2021 |
| Full-Rate Production Deliveries: Full-Rate Production Deliveries - Lot 8 (WPN) | 2 | 2021 | 4 | 2021 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy | | | | | | | | | | Date: February 2016 | | |
|---|-------------|---------|---------|--------------|---|---------------|---------|---------|--|---------------------|------------------|------------|
| Appropriation/Budget Activity 1319 / 7 | | | | | R-1 Program Element (Number/Name) PE 0205601N / Harm Improvement | | | | Project (Number/Name) 2189 / AARGM ER | | | |
| COST (\$ in Millions) | Prior Years | FY 2015 | FY 2016 | FY 2017 Base | FY 2017 OCO | FY 2017 Total | FY 2018 | FY 2019 | FY 2020 | FY 2021 | Cost To Complete | Total Cost |
| 2189: AARGM ER | 0.000 | 0.000 | 9.421 | 43.051 | - | 43.051 | 77.432 | 101.739 | 101.808 | 64.620 | Continuing | Continuing |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

The Air-to-Ground (AGM)-88E Extended Range (ER) Upgrade is a new start for FY 2016 to develop hardware and software modifications to improve the Advanced Anti-Radiation Guided Missile (AARGM)'s operational capabilities, including extended range, survivability and effectiveness against complex, new, and emerging threats. This budget line item funds a new rocket motor design, preliminary design review, test asset procurement, testing, and associated software updates for the AARGM-ER to ensure these capabilities perform in accordance with established requirements. Maturation of the AARGM-ER Acquisition Strategy entails a FY 2017 Technology Maturation and Risk Reduction (TMRR) phase and procurement of test articles beginning FY 2019. AARGM-ER retains the same guidance, sensor, and warhead capabilities of the Block 1 AARGM.

The AARGM-ER program is part of the Navy's Integrated Fire Control (IFC) approach to address advanced threat capabilities in the Anti-Access/Area-Denial (A2AD) environment. IFC solutions enable individual system capabilities to be leveraged across an effects chain, placing the full spectrum of tactical capability in the hands of the warfighter. IFC solutions that push engagement distances beyond the launch platform's radar horizon and allows the U.S. Navy to operate in, and control, contested battle space in littoral waters and A2/AD environments are increasingly critical as more scenarios require compressed and coordinated fire control timelines.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

| | FY 2015 | FY 2016 | FY 2017 Base | FY 2017 OCO | FY 2017 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Title: AARGM ER Development | 0.000 | 9.421 | 43.051 | 0.000 | 43.051 |
| Articles: | - | - | - | - | - |
| FY 2015 Accomplishments: N/A | | | | | |
| FY 2016 Plans: Begin the developmental effort for the AARGM-ER upgrade to include awarding an AARGM Front End Design Analysis contract, development of technical requirements specifications, the Technology Maturation and Risk Reduction Request for Proposals, and documentation to satisfy mandatory DoD 5000.2 entry criteria. Execute analyses for F/A-18 and F-35C aircraft integration. Initiate range safety analysis for telemetry section Flight Termination System development. Develop data analyses to support lead system integration trade decisions. | | | | | |
| FY 2017 Base Plans: Continue the AARGM-ER developmental efforts to include execution of Milestone A and competitive contract award of two prototype contracts for AARGM-ER propulsion kits. Request For Proposal (RFP) for the Front End Modification and System Integration contract is scheduled for release 1Q FY2017. Continue analyses for F/A-18 | | | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy | | | Date: February 2016 |
| Appropriation/Budget Activity 1319 / 7 | R-1 Program Element (Number/Name) PE 0205601N / <i>Harm Improvement</i> | Project (Number/Name) 2189 / <i>AARGM ER</i> | |

| B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each) | FY 2015 | FY 2016 | FY 2017 Base | FY 2017 OCO | FY 2017 Total |
|--|----------------|----------------|-------------------------|------------------------|--------------------------|
| and F-35C aircraft integration. Continue range safety analysis for telemetry section Flight Termination System development. Continue Front End Design Analysis. Develop data analyses to support lead system integration trade decisions. <i>FY 2017 OCO Plans:</i> N/A | | | | | |
| Accomplishments/Planned Programs Subtotals | 0.000 | 9.421 | 43.051 | 0.000 | 43.051 |

C. Other Program Funding Summary (\$ in Millions)

| <u>Line Item</u> | <u>FY 2015</u> | <u>FY 2016</u> | <u>FY 2017 Base</u> | <u>FY 2017 OCO</u> | <u>FY 2017 Total</u> | <u>FY 2018</u> | <u>FY 2019</u> | <u>FY 2020</u> | <u>FY 2021</u> | <u>Cost To Complete</u> | <u>Total Cost</u> |
|------------------------------|----------------|----------------|-------------------------|------------------------|--------------------------|----------------|----------------|----------------|----------------|-----------------------------|-------------------|
| • WPN 2327: <i>HARM Mods</i> | 0.000 | 0.000 | 0.000 | - | 0.000 | 0.000 | 0.000 | 0.000 | 30.000 | 169.784 | 199.784 |

Remarks

FY 2021 and Total Cost funding listed does not include the AARGM Block 1 funding.

D. Acquisition Strategy

The AARGM Extended Range Program will provide hardware and software modifications to improve AARGM's operational capabilities, including extended range, survivability, and effectiveness against complex, new, emerging threats. The program's objective for Initial Operational Capability is FY 2023.

E. Performance Metrics

AARGM-ER will enter development in FY 2016.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

| | | |
|--|---|--|
| Appropriation/Budget Activity 1319 / 7 | R-1 Program Element (Number/Name) PE 0205601N / <i>Harm Improvement</i> | Project (Number/Name) 2189 / <i>AARGM ER</i> |
|--|---|--|

| Product Development (\$ in Millions) | | | | FY 2015 | | FY 2016 | | FY 2017 Base | | FY 2017 OCO | | FY 2017 Total | | | |
|--|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Primary Hardware ER Propulsion Kit Prototype 1 | TBD | TBD : TBD | 0.000 | 0.000 | | 0.000 | | 13.126 | May 2017 | - | | 13.126 | 3.374 | 16.500 | - |
| Primary Hardware ER Propulsion Kit Prototype 2 | TBD | TBD : TBD | 0.000 | 0.000 | | 0.000 | | 13.126 | May 2017 | - | | 13.126 | 78.374 | 91.500 | - |
| Aircraft Integration | Various | Various : Various | 0.000 | 0.000 | | 0.750 | Mar 2016 | 0.204 | Dec 2016 | - | | 0.204 | 31.157 | 32.111 | - |
| Systems Engineering | WR | NAWCWD : China Lake, CA | 0.000 | 0.000 | | 2.573 | Feb 2016 | 3.323 | Nov 2016 | - | | 3.323 | 23.804 | 29.700 | - |
| Telemetry Section | WR | NAWCWD : China Lake, CA | 0.000 | 0.000 | | 0.100 | Feb 2016 | 0.204 | Dec 2016 | - | | 0.204 | 3.973 | 4.277 | - |
| Front End Design Analysis | SS/CPFF | Orbital ATK : Northridge, CA | 0.000 | 0.000 | | 3.821 | Sep 2016 | 4.179 | Feb 2017 | - | | 4.179 | 2.125 | 10.125 | - |
| Front End Integration & Test | TBD | TBD : TBD | 0.000 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 118.196 | 118.196 | - |
| Subtotal | | | 0.000 | 0.000 | | 7.244 | | 34.162 | | - | | 34.162 | 261.003 | 302.409 | - |

Remarks
AARGM-ER is a new start program for FY 2016. FY17 activities include ER Propulsion Kit source selection, execution of two ER Propulsion kit prototype contracts, release of the Request For Proposal (RFP) for the Front End Integration and Test contract, completion of the F-35 and F-18 integration and compatibility analysis, and Technology Maturation Risk Reduction (TMRR) acquisition and documentation activities to support the FY18 (MS) B Milestone.

| Support (\$ in Millions) | | | | FY 2015 | | FY 2016 | | FY 2017 Base | | FY 2017 OCO | | FY 2017 Total | | | |
|--------------------------|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Studies & Analysis | Various | Various : Various | 0.000 | 0.000 | | 0.105 | Apr 2016 | 3.197 | Dec 2016 | - | | 3.197 | 1.563 | 4.865 | - |
| Subtotal | | | 0.000 | 0.000 | | 0.105 | | 3.197 | | - | | 3.197 | 1.563 | 4.865 | - |

| Test and Evaluation (\$ in Millions) | | | | FY 2015 | | FY 2016 | | FY 2017 Base | | FY 2017 OCO | | FY 2017 Total | | | |
|--------------------------------------|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Developmental Test & Evaluation | WR | NAWCWD : China Lake, CA | 0.000 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 27.672 | 27.672 | - |

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|---|-----------------------------------|---|--------------------|----------------|-------------------|---|-------------------|---------------------|-------------------|--|-------------------|----------------------|----------------------------|-------------------|---------------------------------|
| Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy | | | | | | | | | | | | | Date: February 2016 | | |
| Appropriation/Budget Activity 1319 / 7 | | | | | | R-1 Program Element (Number/Name) PE 0205601N / <i>Harm Improvement</i> | | | | Project (Number/Name) 2189 / <i>AARGM ER</i> | | | | | |
| Test and Evaluation (\$ in Millions) | | | | FY 2015 | | FY 2016 | | FY 2017 Base | | FY 2017 OCO | | FY 2017 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ER Test Assets | TBD | TBD : TBD | 0.000 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 91.804 | 91.804 | - |
| Operational and Integrated T&E | WR | Various : Various | 0.000 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 40.132 | 40.132 | - |
| Subtotal | | | 0.000 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 159.608 | 159.608 | - |
| Management Services (\$ in Millions) | | | | FY 2015 | | FY 2016 | | FY 2017 Base | | FY 2017 OCO | | FY 2017 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Program Management Support | Various | Various : Various | 0.000 | 0.000 | | 0.921 | Feb 2016 | 2.790 | Nov 2016 | - | | 2.790 | 15.785 | 19.496 | - |
| Government Engineering Support | WR | NAWCAD : Patuxent River, MD | 0.000 | 0.000 | | 1.111 | Feb 2016 | 2.804 | Nov 2016 | - | | 2.804 | 20.166 | 24.081 | - |
| Travel | WR | NAVAIR HQ : Patuxent River, MD | 0.000 | 0.000 | | 0.040 | Feb 2016 | 0.098 | Nov 2016 | - | | 0.098 | Continuing | Continuing | Continuing |
| Subtotal | | | 0.000 | 0.000 | | 2.072 | | 5.692 | | - | | 5.692 | - | - | - |
| | | | Prior Years | FY 2015 | | FY 2016 | | FY 2017 Base | | FY 2017 OCO | | FY 2017 Total | Cost To Complete | Total Cost | Target Value of Contract |
| Project Cost Totals | | | 0.000 | 0.000 | | 9.421 | | 43.051 | | - | | 43.051 | - | - | - |
| Remarks | | | | | | | | | | | | | | | |

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy

Date: February 2016

Appropriation/Budget Activity

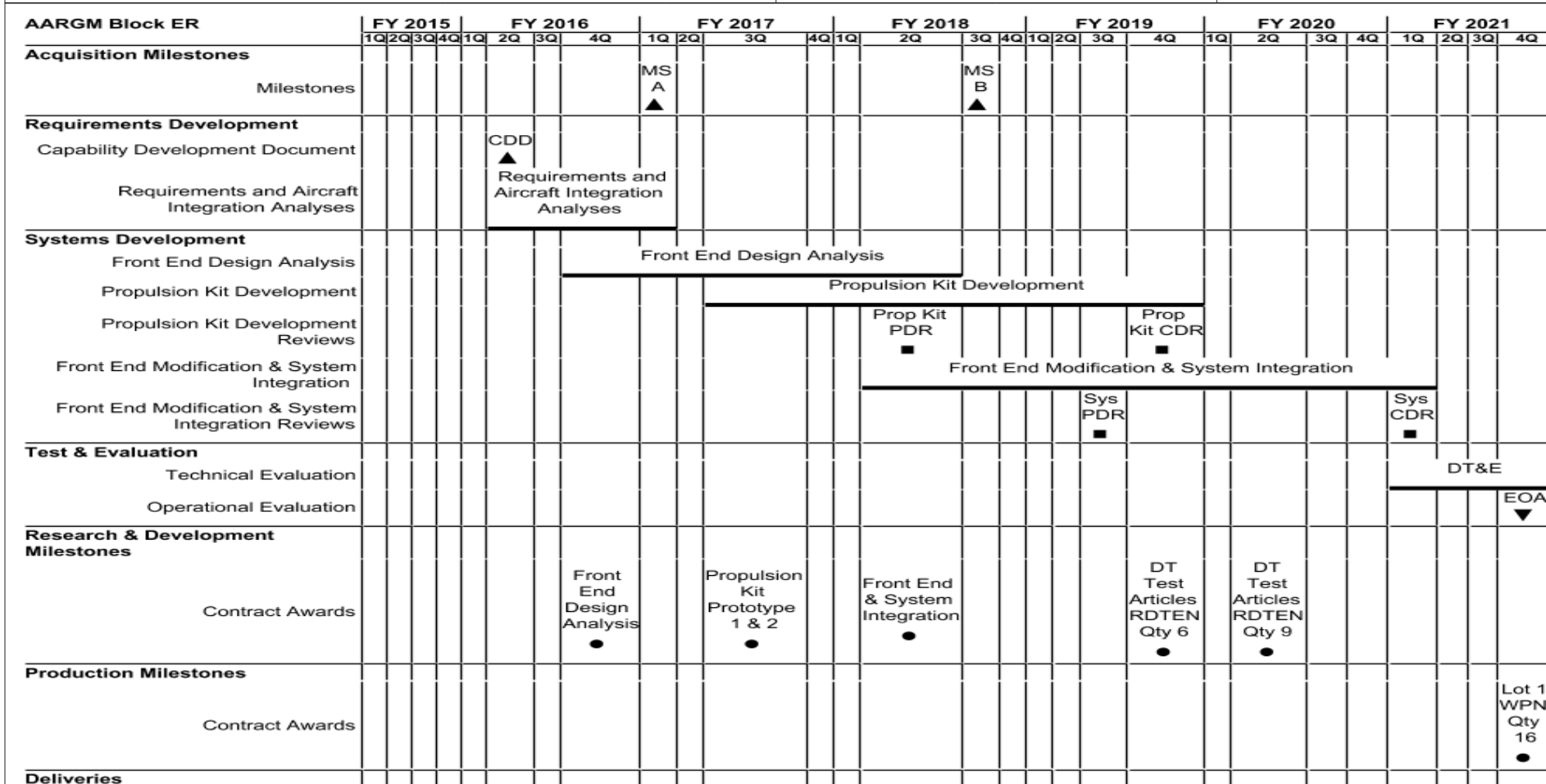
1319 / 7

R-1 Program Element (Number/Name)

PE 0205601N / Harm Improvement

Project (Number/Name)

2189 / AARGM ER



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|---|--|--|--|--|--|--|--|--|--|-----------------------------------|--|--|--|---------------------|--|--|--|-----------------------|--|--|--|
| Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy | | | | | | | | | | | | | | Date: February 2016 | | | | | | | |
| Appropriation/Budget Activity | | | | | | | | | | R-1 Program Element (Number/Name) | | | | | | | | Project (Number/Name) | | | |
| 1319 / 7 | | | | | | | | | | PE 0205601N / Harm Improvement | | | | | | | | 2189 / AARGM ER | | | |
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| Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy | | | Date: February 2016 |
| Appropriation/Budget Activity 1319 / 7 | R-1 Program Element (Number/Name) PE 0205601N / <i>Harm Improvement</i> | Project (Number/Name) 2189 / <i>AARGM ER</i> | |

Schedule Details

| Events by Sub Project | Start | | End | |
|--|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| AARGM Block ER | | | | |
| Acquisition Milestones: Milestones: MS A | 1 | 2017 | 1 | 2017 |
| Acquisition Milestones: Milestones: MS B | 3 | 2018 | 3 | 2018 |
| Requirements Development: Capability Development Document: Capability Development Document | 2 | 2016 | 2 | 2016 |
| Requirements Development: Requirements and Aircraft Integration Analyses: Requirements and Aircraft Integration Analyses | 2 | 2016 | 1 | 2017 |
| Systems Development: Front End Design Analysis: Front End Design Analysis | 4 | 2016 | 2 | 2018 |
| Systems Development: Propulsion Kit Development: Propulsion Kit Development | 3 | 2017 | 4 | 2019 |
| Systems Development: Propulsion Kit Development Reviews: Propulsion Kit Preliminary Design Review | 2 | 2018 | 2 | 2018 |
| Systems Development: Propulsion Kit Development Reviews: Propulsion Kit Critical Design Review | 4 | 2019 | 4 | 2019 |
| Systems Development: Front End Modification & System Integration: Front End Modification & System Integration | 2 | 2018 | 1 | 2021 |
| Systems Development: Front End Modification & System Integration Reviews: System Preliminary Design Review | 3 | 2019 | 3 | 2019 |
| Systems Development: Front End Modification & System Integration Reviews: System Critical Design Review | 1 | 2021 | 1 | 2021 |
| Test & Evaluation: Technical Evaluation: Developmental Test & Evaluation | 1 | 2021 | 4 | 2021 |
| Test & Evaluation: Operational Evaluation: Early Operational Assessment | 4 | 2021 | 4 | 2021 |
| Research & Development Milestones: Contract Awards: Front End Design Analysis | 4 | 2016 | 4 | 2016 |
| Research & Development Milestones: Contract Awards: Propulsion Kit Prototype 1 & 2 | 3 | 2017 | 3 | 2017 |
| Research & Development Milestones: Contract Awards: Front End & System Integration | 2 | 2018 | 2 | 2018 |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy | Date: February 2016 |
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| Appropriation/Budget Activity 1319 / 7 | R-1 Program Element (Number/Name) PE 0205601N / <i>Harm Improvement</i> | Project (Number/Name) 2189 / <i>AARGM ER</i> |
|--|---|--|

| Events by Sub Project | Start | | End | |
|--|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Research & Development Milestones: Contract Awards: DT Test Articles RDTEN Qty 6 | 4 | 2019 | 4 | 2019 |
| Research & Development Milestones: Contract Awards: DT Test Articles RDTEN Qty 9 | 2 | 2020 | 2 | 2020 |
| Production Milestones: Contract Awards: Lot 1 WPN Qty 16 | 4 | 2021 | 4 | 2021 |
| Deliveries: DT Test Articles Qty 6 | 3 | 2020 | 4 | 2020 |
| Deliveries: DT Test Articles Qty 9 | 1 | 2021 | 2 | 2021 |

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